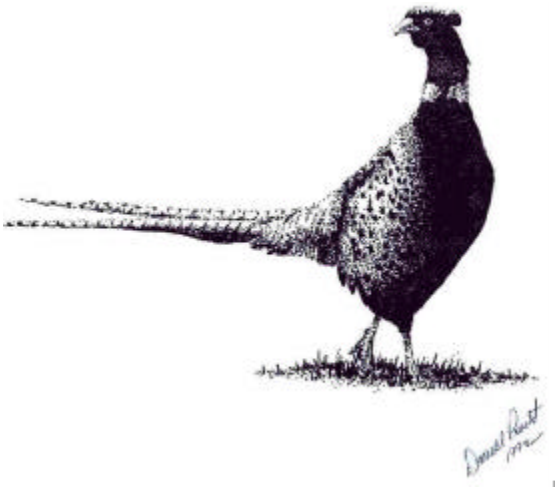

Ring-necked Pheasant

Phasianus colchicus

Last updated: 1999

Written by David A. Ware and Michelle Tirhi

GENERAL RANGE AND WASHINGTON DISTRIBUTION

The ring-necked pheasant is native to Asia and has been extensively introduced throughout North America. Ring-necked pheasants range from central Canada through the northern United States and southward into New Mexico, Texas, Louisiana, and Mississippi (Dumke et al. 1984, Dahlgren 1988, Droege and Sauer 1990).

Ring-necked pheasants are found in most agricultural areas throughout Washington. However, they are only considered a priority species within the primary management zone delineated by Washington Department of Fish and Wildlife's Game Division (see Figure 1).

Figure 1. Primary management zone of the ring-necked pheasant, *Phasianus colchicus*, in Washington. Map developed by Washington Department of Fish and Wildlife Game Division.

RATIONALE

The ring-necked pheasant, a recreationally important game species, is the most popular upland game bird in Washington. Ring-necked pheasants are currently the focus of a major habitat restoration program. Pheasants are dependent on agricultural habitats and they thrive in non-crop vegetation around cultivated crops. As shrub-steppe habitats were converted to agriculture, pheasant populations grew. However, with today's improved farming technology and management practices, pheasants have undergone a tremendous decline as indicated by harvest surveys (Washington Department of Fish and Wildlife 1996). This has resulted in significant declines in hunter numbers and associated recreation. There were over 110,000 pheasant hunters in 1981. In 1995, that number declined to 29,000. Pheasant harvest declined from over 500,000 to 70,000 birds from 1981 to 1995.

HABITAT REQUIREMENTS

Ring-necked pheasants require permanent retention-type cover to sustain populations and use a variety of agricultural cover types. In Washington, prime cover occurs near irrigated farmlands containing cattail patches (*Typha* spp.) mixed with willow (*Salix* spp.) (Blatt 1975, Foster et al. 1984). Riparian/shrub tree bottoms in dryland wheat areas of eastern Washington that are not grazed by livestock also provide excellent habitat. Thickets and shrubs provide shelter and shade; woody plants and thorny shrubs provide escape cover; wetland areas and weedy patches provide roost and loaf sites; and cattail, willow, and bulrush sloughs (*Scirpus* spp.) provide escape and

thermal cover during winter. Fence rows, roadside ditches, and field edges with adequate vegetation provide travel corridors. In Britain, pheasants have been observed roosting in trees and in ditches in areas void of trees (D. Hill, personal communication).

Where adequate habitat exists, pheasants may spend their entire life in an area approximately 256 ha (640 ac) in size. Prime ring-necked pheasant habitat contains approximately 25-50% uncultivated land and 50-75% cultivated land (having 20-75% small grain crops and/or 30-40% field corn crops) (Warner et al 1984).

Roadsides, canals, and drainage banks have good potential for pheasants and other upland wildlife (Joselyn and Tate 1972, Snyder 1974, Varland 1985, Warner et al. 1987). The use of such linear cover depends on the proximity to other prime breeding habitats (Warner and Joselyn 1986), the density and height of cover (Wiegers 1959, Hoffman 1973, Warner et al. 1987), and the width of linear cover (Linder et al. 1960, Gates and Hale 1975).

Nesting and Brood Rearing

Undisturbed cover provides the best nesting and brood rearing habitat. Areas containing new vegetation are preferred; where this is lacking, residual vegetation is used. Alfalfa, wheat, and grass hayfields are often selected as nest sites (Galbreath and Ball 1969; Snyder 1982, 1984). This choice of nesting habitat is the most precarious due to harvest and cultivation. Pastures, woodlots, orchards, row crops, wetlands, and untilled sites adjacent to cropland are also used for nesting (Gates 1970; J. Tabor, personal communication). Ring-necked pheasants typically nest in the tallest [15 cm (6 in) residual cover and 25 cm (10 in) for current growth] herbaceous vegetation available (Washington Department of Wildlife 1987). In Britain, Hill (personal communication) has observed pheasants nesting under area of bramble (*Rubus* spp.) intertwined with grasses that provides both open ground cover and overhead concealment. Nest predation actually increased when nests were situated in clumps of obvious vegetation (D. Hill, personal communication). In Wisconsin, undisturbed grasslands or hayfields with adequate residual cover and wetlands provide key nesting and brood-rearing habitat (Gatti 1983).

Roadsides could provide important nesting areas if managed properly (Trautman 1982, Warner and Joselyn 1986, Hill and Robertson 1988). Warner et al. (1987) commonly found pheasants nesting on roadsides when prime nesting habitat was unavailable. Haensly et al. (1987) cautioned that strip cover, such as that found at roadsides, may also have a higher rate of predation in comparison to more extensive habitats used for nesting.

Brood-rearing habitat includes shrubs, tree rows, grain fields (corn or sorghum), and cool-season grasses (Nelson et al. 1990), which provide both dense hiding cover and adequate food supplies. Optimal brood-rearing habitat contains a high proportion of broad-leaved plants which are a key source of insects and seeds. Optimal brood-rearing habitat also provides overhead concealment from predators and open space at ground level for ease of movement of chicks. Broods typically range over large areas and various vegetative communities in search of food during the first 2 weeks of life (D. Hill, personal communication). Often areas containing the highest densities of preferred foods are avoided, such as weed fields (D. Hill, personal communication).

Roosting

Roosting takes place in grasslands and stubble fields except during severe winter weather when low, herbaceous vegetation (Labisky 1956, Robertson 1958), cattails, and marshy vegetation are preferred (Olsen 1977). In Washington's Columbia Basin, wet meadows containing rush (*Juncus* spp.) are used throughout the year as roosting sites (J. Tabor, personal communication).

Loafing

Loafing areas contain minimal ground cover but dense overhead concealment, such as bushy vegetation, ragweed (*Ambrosia* spp.), or summercypress (*Kochia* spp.). These areas usually provide dusting sites, sunlight, or shade depending upon the needs of the pheasant (Ginn 1962).

Winter

Ideal winter habitat provides food and woody plants for cover (Hill and Robertson 1988). In South Dakota, wetlands lacking snow accumulation are ideal wintering sites (A. Leif, personal communication). In Washington, pheasants mainly winter in dense willow stands and cattail patches on sites 2-6 ha (5-15 ac) in size which are within 1 km (0.6 mi) of cultivated crops (Blatt 1975, Foster et al. 1984). In Great Britain, the highest density of wintering pheasants are located in small woodlots with convoluted boundaries which maximizes the edge:area ratio with surrounding tilled land (D. Hill, personal communication). Multi-row shelterbelts, windbreaks, fencerows, and shrub-type cover which is not grazed by livestock also provide good winter cover.

Food

Ring-necked pheasants feed primarily on cultivated grains, including corn, wheat, barley, peas, and oats (Trautman 1952, DeSimone 1975, Hill and Robertson 1988). Beans, rice, and sorghum are eaten in smaller quantities. Weed and grass seeds are also important food items, especially when waste grain is unavailable (Hiatt 1947, Trautman 1952, Olsen 1977, Wise 1986). In winter, wild fruits are consumed and may include the fruits of chokecherry (*Aronia* spp.), wild rose (*Rosa* spp.), snowberry (*Symphoricarpos* spp.), hawthorn (*Crataegus* spp.), and serviceberry (*Amelanchier* spp.). Insects and gastropods are eaten in small quantities by adults. Insects are consumed in larger quantities by hens during the breeding season and by chicks and juveniles (Loughrey and Stinson 1955; Korschgen 1964; Olsen 1977; A. Leif, personal communication). Species eaten include grasshoppers, snails, beetles, ants, cutworms, crickets, plant bugs, and sawfly larvae. During egg laying, hens consume large amounts of snail shells and high calcium grit to help in egg shell production (Wise 1986).

LIMITING FACTORS

Loss of permanent nesting and winter cover on irrigated lands is the primary factor limiting the ring-necked pheasant (Kimball et al. 1956 in Allen 1956, Washington Department of Game 1957, MacMullan 1961, Blatt 1975, Burger 1988, Hart 1990). Specific problems include the loss of cattail and willow stands, woody plants, windbreaks, and brushy fencerows (Warner et al. 1984). Pesticides have been shown to lower chick production (Labisky and Lutz 1967, Borg et al. 1969 in Potts 1986) and chick viability, (Rudd and Genelly 1956) as well as degenerate the nervous system.

MANAGEMENT RECOMMENDATIONS

Irrigated farmlands within the Columbia Basin Project, the Yakima Valley, and riparian areas in south Whitman, northern Garfield, Columbia, and Walla Walla counties should be considered high priority areas for ring-necked pheasants. Optimal feeding and wintering areas are 1 km (0.6 mi) (Hart 1990) to 1.2 km (0.75 mi) apart (Blatt 1975). Hill (personal communication) recommends maintaining many small plots of woodland with a maximum distance of 500-750 m (1,600-2,500 ft) between woodlots and permanent winter cover. On public lands, legumes and/or native grasses should be planted as nesting cover and shrubs and woody plants as winter cover. Multi-species food plots should be established near permanent cover. At the landscape level, habitat management for pheasants should include a mosaic of different crops and residual cover interspersed with plots of permanent cover (D. Hill, personal communication).

Fence rows, waterways, cattail and willow patches, thickets, shrubs, and other woody plants on irrigated private farmlands should be protected and enhanced. Farmers should be encouraged to delay alfalfa cutting 1 week or longer to increase nesting success (Hartman and Fisher 1984) and/or grow winter wheat, seed alfalfa, or grass seed crops. Strips of standing corn should be left in fields for winter food. Undisturbed grasslands and hayfields containing residual cover should be preserved (Gatti 1983). Where these components are lacking, the provision of large, square-shaped fields 4-32 ha (10-80 ac) in close proximity [3 km (2 mi)] to winter cover would enhance pheasant nesting and brood-rearing (Gatti 1983). Private landowners may also be encouraged to retire lands of marginal grazing or crop value, especially lands with moderate to high erosion risks (Gatti 1983).

Livestock grazing should be restricted or excluded on isolated tracts throughout pheasant range, in riparian areas, in woody cover, and on prime wintering, nesting, and roosting grounds (Wechsler 1986; Hart 1990; J. Tabor, personal communication). Fences should be constructed around ponds to exclude cattle and increase nesting cover.

In areas of low precipitation, protect or plant dense stands of warm- and cool-season grasses and legumes for nesting (Warner and Joselyn 1986). If weed control on these areas is necessary, mow between 1 August and 1 September (late summer) to allow hens to bring off a brood and allow vegetation to regrow prior to winter dormancy (Hoffman 1973, Wechsler 1986, Hart 1990).

Pesticide spraying should be avoided within prime pheasant habitat (Hoffman 1973). Where spraying is unavoidable, use a spot spraying technique verses blanket spraying (Wechsler 1986). Incorporate 6 m (20 ft) strips around the perimeter of cereal grain fields which would not receive chemical treatment (Potts 1986; A. Leif, personal communication). Landowners are encouraged to use integrated pest management that targets specific pests or noxious weeds, pest population thresholds to determine when to use pesticides or herbicides, and crop rotation/diversity and beneficial insects to control pests (Stinson and Bromley 1991; L. Peterson, personal communication). See Appendix A for useful contacts for assistance when assessing pesticides, herbicides, and their alternatives.

REFERENCES

Allen, D. L., editor. 1956. Pheasants in North America. The Stackpole Company, Harrisburg, Pennsylvania and Wildlife Management Institute, Washington, D.C., USA.

Blatt, D. D. 1975. Pheasant retention habitat acquisition and development. Unpublished Report, Washington Department of Wildlife, Olympia, Washington, USA.

Burger, G. V. 1988. 100 years of ringnecks: an historical perspective on pheasants in North America. Pages 1-26 *in* D. L. Hallett, W. R. Edwards, and G. V. Burger, editors. Pheasants: symptoms of wildlife problems on agricultural lands. The Wildlife Society, Northcentral Section, Bloomington, Illinois, USA.

Dahlgren, R. B., 1988. Distribution and abundance of the ring-necked pheasant in North America. Pages 29-43 *in* D. L. Hallett, W. R. Edwards, and G. V. Burger, editors. Pheasants: symptoms of wildlife problems on agricultural lands. The Wildlife Society, Northcentral Section, Bloomington, Illinois, USA.

DeSimone, R. M. 1975. Interspersion of cover types as related to pheasant use on a game management area in south-central Montana. Project W-120-R-5, 6 and 7, Study GB-18.1, Job 1. Montana Department of Fish, Wildlife, and Parks, Helena, Montana, USA

Droege S., and J. R. Sauer, 1990. Northern bobwhite, gray partridge, and ring-necked pheasant population trends (1966-1988) from the North American Breeding Bird Survey. Pages 2-20 *in* K. E. Church, R. E. Warner, and S. J. Brady, editors. Perdix V: gray partridge and ring-necked pheasant workshop. Kansas Department of Wildlife and Parks, Emporia, Kansas, USA.

Dumke, R. T., R. B. Stiehl, and R. B. Kahl, 1984. Questionnaire survey results; population status, harvest, and game farm programs for gray partridge and ring-necked pheasants in North America. Pages 175-192 *in* R. T. Dumke, R. B. Stiehl, and R. B. Kahl, editors. Perdix III: gray partridge and ring-necked pheasant workshop. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA.

Foster, J. H., W. E. Tillett, W. L. Myers, and J. C. Hoag. 1984. Columbia basin wildlife/irrigation development study. REC-ERC-83-6. U.S. Department of Interior, Bureau of Reclamation, Ephrata, Washington., USA.

Galbreath, D. S., and C. C. Ball. 1969. Columbia Basin pheasant nesting studies in alfalfa and sagebrush areas. Pages 105-111 *in* Anonymous. Game Bird Management 1969-1970. Washington Department of Wildlife, Olympia, Washington, USA.

Gates, J. M. 1970. Recommendations for a scattered wetlands program of pheasant habitat preservation in southeast Wisconsin. Research Report Number 63. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA.

____, and J. B. Hale. 1975. Reproduction of an east-central Wisconsin pheasant population. Technical Bulletin Number 85. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA.

Gatti, R. C. 1983. Ring-necked pheasants. Draft species management guidelines, chapter 39. Wisconsin Department of Natural Resources, Research Center, Monona, Wisconsin, USA.

Ginn, W. E. 1962. The ring-neck pheasant in Indiana. P-R bulletin Number 6. Indiana Division of Fish and Game, Indianapolis, Indiana, USA.
Haensly, T. F., J. A. Crawford, and S. M. Meyers. 1987. Relationships of habitat structure to nest success of ring-necked pheasants. Journal of Wildlife Management 51:421-425.
Hart, C. M. 1990. Management plan for the ring-necked pheasant in California. Project W-65-R. California Department of Fish and Game, Sacramento, California, USA.
Hartman, F. E., and R. Fisher. 1984. Pheasant nesting success with delayed hay mowing in Pennsylvania: preliminary results. Pages 110 to 116 *in* R. T. Dunke, R. B. Stiehl, and R. B. Kahl, editors. Proceedings of Perdix III/Gray partridge and ring-necked pheasant workshop, Campbellsport, Wisconsin, USA.
Hiatt, R. W. 1947. The relation of pheasants to agriculture in the Yellowstone and Big Horn River Valleys of Montana. Project 1-R. Montana Fish and Game Department, Wildlife Restoration Division, Helena, Montana, USA.
Hill, D., and P. Robertson, 1988. The pheasant: ecology, management, and conservation. BSP Professional Books, London, England.
Hoffman, D. M. 1973. Pheasant nest site selection. Special Report number 32. Colorado Division of Wildlife, Denver, Colorado, USA.
Joselyn, G. B., and G. I. Tate. 1972. Practical aspects of managing roadside cover for nesting pheasants. Journal of Wildlife Management 36:1-11.
Korschgen, L. J. 1964. Foods and nutrition of Missouri and Midwestern pheasants. Transactions of the North American Wildlife Conference 29:159-181.
Labisky, R. F. 1956. Behavior and movements of pheasants. Project W-30-R-11, Job 1. Illinois Department of Conservation, Springfield, Illinois, USA.
____, and R. W. Lutz. 1967. Response of wild pheasants to solid-block applications of aldrin. Journal of Wildlife Management 31:13-24.
Linder, R. L., D. L. Lyon, and C. P. Agee. 1960. An analysis of pheasant nesting in south-central Nebraska. Transactions. North American Wildlife Conference 25:214-230.
Loughrey, A. G., and R. H. Stinson. 1955. Feeding habits of juvenile ring-necked pheasants on Pelee Island, Ontario. Canadian Field-Naturalist 69:59-65.
MacMullan, R. A. 1961. Ring-necked pheasant habitat management in the United State. Transactions. North American Wildlife and Natural Resources Conference 26:268-272.
Nelson, D. R., R. O. Kimmel, and M. J. Frydendall. 1990. Ring-necked pheasant and gray partridge brood habitat in roadsides and managed grasslands. Pages 103 to 119 *in* K. E. Church, R. E. Warner, and S. J. Brady, editors. Perdix V: gray partridge and ring-necked pheasant workshop. Kansas Department of Wildlife and Parks, Emporia, Kansas, USA.
Olsen, D. W., 1977. A literature review of pheasant habitat requirements and improvement methods. Publication 77-7, project W-65-R-D-25, job B-8. Utah Department of Natural Resources, Salt Lake City, Utah, USA.
Potts, G. R. 1986. The partridge: pesticides, predation, and conservation. Collins Professional and Technical Books, London, England.
Robertson, W. D. 1958. Investigation of ring-necked pheasants in Illinois. Technical Bulletin Department of Conservation, Springfield, Illinois, USA.
Rudd, R. L., and R. E. Genelly. 1956. Pesticides: their use and toxicity in relation to wildlife. Game bulletin number 7. California Department of Fish and Game, Sacramento, California, USA.
Snyder, W. D. 1974. Pheasant use of roadsides for nesting in Northeast Colorado. Special Report Number 36. Colorado Division of Wildlife, Denver, Colorado, USA.
____. 1982. Evaluation of nesting cover preferences for pheasants in relation to wheat farming methods. Final Report, project W-37-R-35, job 22. Oregon Department of Fish and Wildlife, Portland, Oregon, USA.
____. 1984. Ring-necked pheasant nesting ecology and wheat farming in the High Plains. Journal of Wildlife Management 48:878-888.
Stinson, E. R., and P. T. Bromley. 1991. Pesticides and wildlife: a guide to reducing impacts on animals and their habitat. Virginia Department of Game and Inland Fisheries, Richmond, Virginia, USA.
Trautman, C. G. 1952. Pheasant food habitats in South Dakota. Technical Bulletin Number 1. South Dakota Department of Game, Fish, and Parks, Pierre, South Dakota, USA.
____. 1982. History, ecology, and management of the ring-necked pheasant in South Dakota. South Dakota Department of Game, Fish, and Parks, Pierre, South Dakota, USA.
Varland, K. 1985. Why roadsides for wildlife. Minnesota Volunteer 2:3-8.

Warner, R. E., S. L. Etter, G. B. Joselyn, and J. A. Ellis. 1984. Declining survival of ring-necked pheasant chicks in Illinois agricultural ecosystems. Journal of Wildlife Management 48:82-88.
____, and G. B. Joselyn. 1986. Responses of Illinois ring-necked pheasant populations to block roadside management. Journal of Wildlife Management 50:525-532.
____, G. B. Joselyn , and S. L. Etter. 1987. Factors affecting roadside nesting by pheasants in Illinois. Wildlife Society Bulletin 15:221-228.
Washington Game Department. 1957. Ten years of pheasant management, 1946-1956. Game Management and Land Management Division, Olympia, Washington, USA.
Washington Department of Fish and Wildlife. 1996. 1996 Game status and trend report. Washington Department of Fish and Wildlife, Olympia, Washington, USA.
Washington Department of Wildlife. 1987. Documentation of evaluation criteria for Conservation Reserve Program (CRP) lands in relation to ring-necked pheasant habitat quality. Unpublished Report, Washington Department of Wildlife, Olympia, Washington, USA.
Wechsler, C. 1986. The pheasant in Minnesota. Minnesota Department of Natural Resources, Madelia, Minnesota, USA.
Wiegers, H. L. 1959. A survey of roadsides: their status and value to nesting game birds. Project W-32-R-1 and 2, job 1-58 and 59. Nebraska Game and Parks Commission, Lincoln, Nebraska, USA.
Wise, S. 1986. The ring-necked pheasant (*Phasianus colchicus*). PUBL-WM-014, 86. Wisconsin Department of Natural Resources, Bureau of Wildlife Management, Madison, Wisconsin, USA.

PERSONAL COMMUNICATIONS

David Hill, Managing Director
Ecoscope: Applied Ecologists
Cambridge, Great Britain

Anthony Leif, Wildlife Biologist
South Dakota Dept. of Game, Fish and Parks
Huron, South Dakota

Jim Tabor, Area Wildlife Biologist
Washington Department of Fish and Wildlife
Ephrata, Washington

Les R. Peterson, Southern Regional Ecologist
Wisconsin Department of Natural Resources
Monona, Wisconsin

CONTACTS

Dave Ware, Upland Game Section Manager
Washington Department of Fish and Wildlife
600 N. Capitol Way
Olympia, WA 98501
(360) 902-2509

U.S. Fish and Wildlife Service
3704 Griffin Lane SE
Suite 102
Olympia, WA 98501-2192
(360) 753-9440

Washington State University
Cooperative Extension Service
921 Lakeridge Drive SW, Room 216
Olympia, WA 98502
(360) 786-5445

USDA Natural Resource Conservation Service
316 W. Boone Ave.
Suite 450
Spokane, WA 99201-2348
(509) 353-2354

KEY POINTS

Habitat Requirements

- Irrigated farmlands containing cattail patches mixed with willow and ungrazed riparian/shrub tree habitat in dryland wheat areas provide suitable retention cover for ring-necked pheasants.
- Ring-necked pheasant habitat contains approximately 25-50% idle land and 50-75% cultivated land (having 20-75% small grain crops and/or 30-40% field corn crops).
- Pheasants nest in undisturbed cover (May-July) found in alfalfa and wheat fields, grass hayfields, pastures, woodlots, orchards, row crops, wetlands, roadsides, and untilled areas adjacent to cropland.
- Nests are placed in tall, dense herbaceous vegetation [minimum15 cm (6 in) residual cover and 25 cm (10 in) current growth].
- Brood rearing habitat includes shrubs, tree rows, grain fields (corn or sorghum), and cool-season grasses with an abundance of broad-leaved plants and insects for chicks.
- Pheasants roost in grasslands, stubble fields, cattails, marshy vegetation, and wet meadows containing rush.
- Preferred loafing areas contain minimal ground cover and dense overhead concealment.
- Pheasants winter in dense willow stands and cattail patches 2-6 ha (5-15 ac) in size and 1 km (0.6 mi) from cultivated crops. Multi-row shelterbelts, windbreaks, fencerows, ungrazed shrub-type cover, and wetland vegetation also provides key wintering habitat.
- Pheasants feed primarily on cultivated grains, including corn, wheat, barley, peas and oats, weed and grass seeds, wild fruits, and insects.

Management Recommendations

- Optimal feeding and wintering areas are 1-1.2 km (0.6-0.75 mi) apart, preferably 500-750 m (1,600-2,500 ft).
- Plant legumes and/or native grasses as nesting cover and shrubs and woody plants as winter cover.
- Establish multi-species food plots (>2 acres in blocks) near permanent cover.
- Manage strip cover (roadsides, canals, and drainage banks) in areas of medium to high precipitation [>25 cm (10 in)]. Maintain or plant dense stands of warm- and cool-season grasses and legumes in areas of low precipitation. If weed control is necessary, mow between 1 August and 1 September.
- Discourage the removal and annual burning of fence rows, waterways, cattail and willow patches, thickets, shrubs, and other woody plants on irrigated private farmlands.
- Encourage farmers to delay alfalfa cutting to increase nesting time and/or grow other less hazardous crops.
- Leave scattered, standing grain in fields for winter food.
- At the landscape level, habitat management for pheasants should include a mosaic of different crops and residual cover, interspersed with tracts of permanent cover.
- Livestock grazing should be restricted and/or excluded on isolated tracts, woody cover, riparian areas, and on wintering grounds. Restrict livestock by placing fences around ponds.
- Avoid the use of pesticides within prime pheasant habitat where possible. Refer to Appendix A when assessing pesticides, herbicides, and their alternatives.
- Use spot spraying (verses blanket spraying) where spraying pesticides is unavoidable and establish a 6 m (20 ft) conservation headland (buffer) around the perimeter of cereal fields.
- Encourage the use of integrated pest management within the ring-necked pheasant primary management zone.